K 7

```
RRRRRRRRRRRR     UUU         UUU  NNN         NNN     OOOOOOOOO     FFFFFFFFFFFFFFF  FFFFFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN         NNN     OOOOOOOOO     FFFFFFFFFFFFFFF  FFFFFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN         NNN     OOOOOOOOO     FFFFFFFFFFFFFFF  FFFFFFFFFFFFFFF
RRR         RRR  UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNNNNN      NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNNNNN      NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNNNNN      NNN  OOO         OOO  FFF              FFF
RRRRRRRRRRRR     UUU         UUU  NNN   NNN   NNN  OOO         OOO  FFFFFFFFFFFF     FFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN   NNN   NNN  OOO         OOO  FFFFFFFFFFFF     FFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN   NNN   NNN  OOO         OOO  FFFFFFFFFFFF     FFFFFFFFFFFF
RRR   RRR        UUU         UUU  NNN      NNNNNN  OOO         OOO  FFF              FFF
RRR   RRR        UUU         UUU  NNN      NNNNNN  OOO         OOO  FFF              FFF
RRR   RRR        UUU         UUU  NNN      NNNNNN  OOO         OOO  FFF              FFF
RRR      RRR     UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR      RRR     UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR      RRR     UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN         NNN     OOOOOOOOO     FFF              FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN         NNN     OOOOOOOOO     FFF              FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN         NNN     OOOOOOOOO     FFF              FFF
```

```
_$2

Sym
---
NDX
NDX
NUM
NUM
OPE
OUT
PAC
PAC
PAC
PAC
PAC
PAC
PAC
PAD
PAG
PAG
PAG
PAG
PAG
PAG
PAG
PER
PUT
RCO
RIN

RLI
RNO
RNO
RTY
SAV
STR
STR
STR
STR
STR
STR

STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
```

```
**FILE**ID**PACK                                   I 15



PPPPPPPP      AAAAAA      CCCCCCCC  KK      KK
PPPPPPPP      AAAAAA      CCCCCCCC  KK      KK
PP      PP  AA      AA  CC          KK      KK
PP      PP  AA      AA  CC          KK      KK
PP      PP  AA      AA  CC          KK    KK
PP      PP  AA      AA  CC          KK    KK
PPPPPPPP    AA      AA  CC          KKKKKK
PPPPPPPP    AA      AA  CC          KKKKKK
PP          AAAAAAAAAA  CC          KK    KK
PP          AAAAAAAAAA  CC          KK    KK
PP          AA      AA  CC          KK      KK      ....
PP          AA      AA  CC          KK      KK      ....
PP          AA      AA    CCCCCCCC  KK      KK      ....
PP          AA      AA    CCCCCCCC  KK      KK      ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
  0001  0 %TITLE 'Number outputting routines'
  0002  0 MODULE PACK (            IDENT = 'V04-000'
P 0003  0 %BLISS32[,
P 0004  0         ADDRESSING_MODE(EXTERNAL=LONG_RELATIVE,NONEXTERNAL=LONG_RELATIVE)
  0005  0         ]
  0006  0                 ) =
  0007  1 BEGIN
  0008  1 !
  0009  1 !****************************************************************************
  0010  1 !*                                                                          *
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  0027  1 !*   SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                *
  0028  1 !*                                                                          *
  0029  1 !*                                                                          *
  0030  1 !****************************************************************************
  0031  1 !
  0032  1 !++
  0033  1 ! FACILITY:      DSR (Digital Standard RUNOFF) / DSRPLUS
  0034  1 !
  0035  1 ! ABSTRACT:
  0036  1 !
  0037  1 !       Routines to output numbers, a RUNOFF style page number,
  0038  1 !       RUNOFF style section numbers, and ordinary strings.
  0039  1 !
  0040  1 ! ENVIRONMENT:  Transportable
  0041  1 !
  0042  1 ! AUTHOR:  D. Knight    , CREATION DATE:  June 1978
  0043  1 !
```

```
;     45           0044  1 %SBTTL 'Revision History'
;     46           0045  1 !
;     47           0046  1 ! MODIFIED BY:
;     48           0047  1 !
;     49           0048  1 !          008     REM00008        Ray Marshall    21-Mar-1984
;     50           0049  1 !                  Implemented the foreign language conditionals for compiling
;     51           0050  1 !                    fixed output words.  At this time, we only have the German
;     52           0051  1 !                    translations available.  But, since the German word for INDEX
;     53           0052  1 !                    is the same as in English, that conditional isn't used.
;     54           0053  1 !
;     55           0054  1 !          007     KAD00007        Keith Dawson    07-Mar-1983
;     56           0055  1 !                  Global edit of all modules. Updated module names, idents,
;     57           0056  1 !                  copyright dates. Changed require files to BLISS library.
;     58           0057  1 !
;     59           0058  1 !--
;     61         0059   1 %SBTTL 'Module Level Declarations'
;     62         0060   1
;     63         0061   1 !
;     64         0062   1 ! TABLE OF CONTENTS:
;     65         0063   1 !
;     66         0064   1
;     67         0065   1 FORWARD ROUTINE
;     68         0066   1         PACBAS,                           !Convert to specified base and pack
;     69         0067   1         PACLET,                           !Convert to letters and pack
;     70         0068   1         PACPAG,                           !Convert page number to ASCII
;     71         0069   1         PACROM,                           !Convert string to Roman numerals.
;     72         0070   1         PACSTR,                           !Pack string into print line
;     73         0071   1         PACSEC,                           !Convert section number to ASCII
;     74         0072   1         PACXXX;                           !Convert any counter to whatever XXX indicates.
;     75         0073   1
;     76         0074   1 !
;     77         0075   1 ! INCLUDE FILES:
;     78         0076   1 !
;     79         0077   1
;     80         0078   1 LIBRARY 'NXPORT:XPORT';                   ! XPORT Library
;     81         0079   1 REQUIRE 'REQ:RNODEF';                     ! RUNOFF variant definitions
;     82         0210   1
;     83       U 0211   1 %IF DSRPLUS %THEN
;     84       U 0212   1 LIBRARY 'REQ:DPLLIB';                     ! DSRPLUS BLISS Library
;     85         0213   1 %ELSE
;     86         0214   1 LIBRARY 'REQ:DSRLIB';                     ! DSR BLISS Library
;     87         0215   1 %FI
;     88         0216   1
;     89         0217   1 !
;     90         0218   1 ! MACROS:
;     91         0219   1 !
;     92         0220   1 !
;     93         0221   1 ! EQUATED SYMBOLS:
;     94         0222   1 !
;     95         0223   1 !
;     96         0224   1 ! OWN STORAGE:
;     97         0225   1 !
;     98         0226   1 !
;     99         0227   1 ! EXTERNAL REFERENCES:
;    100         0228   1 !
;    101         0229   1
;    102         0230   1 EXTERNAL ROUTINE
;    103         0231   1     CONVBB,                                       !Convert Binary to specified base
;    104         0232   1     CONVBL,                                       !Convert binary to letters.
;    105         0233   1     CONVBR;                                       !Convert binary to Roman.
;    106         0234   1
;   108       0235  1 %SBTTL 'Routine PACBAS'
;   109       0236  1 GLOBAL ROUTINE PACBAS (VALUE, LINE_PTR, BASE) =           !
;   110       0237  1
;   111       0238  1 !++
;   112       0239  1 ! FUNCTIONAL DESCRIPTION:
;   113       0240  1 !
;   114       0241  1 !       Convert a decimal number to ASCII and place it in the
;   115       0242  1 !       output text.
;   116       0243  1 !
;   117       0244  1 ! FORMAL PARAMETERS:
;   118       0245  1 !
;   119       0246  1 !       VALUE - number to be converted (no negative numbers allowed)
;   120       0247  1 !       LINE_PTR - string pointer into output line for text
;   121       0248  1 !       BASE - base in which number is to be expressed.
;   122       0249  1 !
;   123       0250  1 ! IMPLICIT INPUTS:      None
;   124       0251  1 !
;   125       0252  1 ! IMPLICIT OUTPUTS:     None
;   126       0253  1 !
;   127       0254  1 ! ROUTINE VALUE:
;   128       0255  1 ! COMPLETION CODES:
;   129       0256  1 !
;   130       0257  1 !       The length of the converted string is returned
;   131       0258  1 !
;   132       0259  1 ! SIDE EFFECTS: None
;   133       0260  1 !
;   134       0261  1 !--
;   135       0262  1
;   136       0263  2     BEGIN
;   137       0264  2
;   138       0265  2     LOCAL
;   139       0266  2         COUNT,
;   140       0267  2         TEXT : VECTOR [10];
;   141       0268  2
;   142       0269  2     !Convert to decimal
;   143       0270  2     CONVBB (.VALUE, TEXT, COUNT, .BASE);
;   144       0271  2     !Now pack it into the output line
;   145       0272  2
;   146       0273  2     DECR I FROM .COUNT TO 1 DO
;   147       0274  2         CH$WCHAR_A (.TEXT [.I - 1], .LINE_PTR);
;   148       0275  2
;   149       0276  2     .COUNT
;   150       0277  1     END;                                          !End of PACBAS


                                                                 .TITLE  PACK Number outputting routines
                                                                 .IDENT  \V04-000\

                                                                 .EXTRN  CONVBB, CONVBL, CONVBR

                                                                 .PSECT  $CODE$,NOWRT,2

                                        0000 00000               .ENTRY  PACBAS, Save nothing                     ; 0236
                     5E            2C     C2 00002               SUBL2   #44, SP
                             0C    AC     DD 00005               PUSHL   BASE                                     ; 0270
                             04    AE     9F 00008               PUSHAB  COUNT                                    ;
                             0C    AE     9F 0000B               PUSHAB  TEXT                                     ;
```

```
                                                04   AC  DD 0000E         PUSHL   VALUE                                       ;
                            00000000G   EF           04  FB 00011         CALLS   #4, CONVBB                                  ;
                         50             6E           01  C1 00018         ADDL3   #1, COUNT, I                                ; 0274
                                                     0B  11 0001C         BRB     2$                                          ;
                                        51      08   AC  D0 0001E 1$:     MOVL    LINE_PTR, R1                                ;
                                  00    B1         6E40  F6 00022         CVTLB   TEXT=4[I], @0(R1)                           ;
                                                     61  D6 00027         INCL    (R1)                                        ;
                                        F2           50  F5 00029 2$:     SOBGTR  I, 1$                                       ;
                                        50           6E  D0 0002C         MOVL    COUNT, R0                                   ; 0277
                                                         04 0002F         RET                                                 ;

; Routine Size:  48 bytes,    Routine Base:  $CODE$ + 0000


;  151            0278  1
;  153          0279  1 %SBTTL 'Routine PACLET'
;  154          0280  1 GLOBAL ROUTINE PACLET (VALUE,LINE_PTR,ULM) =     !
;  155          0281  1
;  156          0282  1 !++
;  157          0283  1 ! FUNCTIONAL DESCRIPTION:
;  158          0284  1 !
;  159          0285  1 !       Convert a decimal number to letters and place it in the
;  160          0286  1 !       output text.
;  161          0287  1 !
;  162          0288  1 ! FORMAL PARAMETERS:
;  163          0289  1 !
;  164          0290  1 !       VALUE - number to be converted (no negative numbers allowed)
;  165          0291  1 !       LINE_PTR - string pointer into output line for text
;  166          0292  1 !       ULM - indicates whether result is to be in upper, lower, or mixed case.
;  167          0293  1 !
;  168          0294  1 ! IMPLICIT INPUTS:       None
;  169          0295  1 !
;  170          0296  1 ! IMPLICIT OUTPUTS:      None
;  171          0297  1 !
;  172          0298  1 ! ROUTINE VALUE:
;  173          0299  1 ! COMPLETION CODES:
;  174          0300  1 !
;  175          0301  1 !       The length of the converted string is returned
;  176          0302  1 !
;  177          0303  1 ! SIDE EFFECTS: None
;  178          0304  1 !
;  179          0305  1 !--
;  180          0306  1
;  181          0307  2     BEGIN
;  182          0308  2
;  183          0309  2     LOCAL
;  184          0310  2         COUNT,
;  185          0311  2         TEXT:   VECTOR[10];
;  186          0312  2
;  187          0313  2     !Convert to letters
;  188          0314  2     CONVBL(.VALUE,TEXT,COUNT,.ULM);
;  189          0315  2
;  190          0316  2     !Now pack it into the output line
;  191          0317  2     DECR I FROM .COUNT TO 1 DO
;  192          0318  2         CH$WCHAR_A(.TEXT[.I-1],.LINE_PTR);
;  193          0319  2
;  194          0320  2     .COUNT
;  195          0321  2
;  196          0322  1     END;                          !End of PACLET



                                            0000 00000          .ENTRY  PACLET, Save nothing                          ; 0280
                            5E                2C  C2 00002          SUBL2   #44, SP                                       ;
                                       0C     AC  DD 00005          PUSHL   ULM                                           ; 0314
                                       04     AE  9F 00008          PUSHAB  COUNT                                         ;
                                       0C     AE  9F 0000B          PUSHAB  TEXT                                          ;
                                       04     AC  DD 0000E          PUSHL   VALUE                                         ;
                  00000000G  EF               04  FB 00011          CALLS   #4, CONVBL                                    ;
               50            6E               01  C1 00018          ADDL3   #1, COUNT, I                                  ; 0318
```

```
                                              0B  11 0001C          BRB     2$                                                    ;
                                 51       08  AC  D0 0001E 1$:      MOVL    LINE_PTR, R1                                          ;
                         00      B1         6E40  F6 00022          CVTLB   TEXT=4[I], @0(R1)                                     ;
                                              61  D6 00027          INCL    (R1)                                                  ;
                                 F2           50  F5 00029 2$:      SOBGTR  I, 1$                                                 ;
                                 50           6E  D0 0002C          MOVL    COUNT, R0                                             ; 0322
                                                  04 0002F          RET                                                           ;

; Routine Size:  48 bytes,    Routine Base:  $CODE$ + 0030
```

```
1 %SBTTL 'Routine PACPAG'
1 GLOBAL ROUTINE PACPAG (LINE_NO,LINE_PTR) =       !
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       Pack multiple part page number into print line.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       LINE_NO  - Address of line number to be packed
1 !       LINE_PTR - String pointer to print line.
1 !
1 ! IMPLICIT INPUTS:      None.
1 !
1 ! IMPLICIT OUTPUTS:     None
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       The number of characters generated is returned.
1 !
1 ! SIDE EFFECTS: None
1 !
1 !--
1
2     BEGIN
2     MAP
2         LINE_NO: REF BLOCK;
2     LOCAL
2         CHAR_COUNT;
2
2     CHAR_COUNT=0;
2
2     !Pack section into line
2     IF .LINE_NO[SCT_TYP] NEQ 0
2     THEN
3         BEGIN
3
3         CHAR_COUNT=.CHAR_COUNT+PACSEC(.LINE_NO,.LINE_PTR);
3
3         !Now put in the "-" for separator
3         CH$WCHAR_A(%C'-',.LINE_PTR);
3         CHAR_COUNT=.CHAR_COUNT+1;
3
2         END;
2
2     !Pack page number into line
2     CHAR_COUNT=.CHAR_COUNT+PACXXX(.LINE_NO[SCT_PAGE],.LINE_PTR,.LINE_NO[SCT_PAGE_D]);
2
2     !Place sub-page into line
2     IF .LINE_NO[SCT_SUB_PAGE] NEQ 0
2     THEN
3         BEGIN
3         CHAR_COUNT=.CHAR_COUNT+PACXXX(.LINE_NO[SCT_SUB_PAGE],.LINE_PTR,.LINE_NO[SCT_SUBPG_D]);
2         END;
2
```

```
;  255          0380  2     .CHAR_COUNT
;  256          0381  2
;  257          0382  1     END;                        !End of PACPAG



                                                       001C 00000          .ENTRY  PACPAG, Save R2,R3,R4                       ; 0324
                                       54 00000000V  EF  9E 00002          MOVAB   PACXXX, R4                                  ;
                                                     53  D4 00009          CLRL    CHAR_COUNT                                  ; 0355
                                       52       04   AC  D0 0000B          MOVL    LINE_NO, R2                                 ; 0358
                                       0F            62  93 0000F          BITB    (R2), #15                                   ;
                                                     1B  13 00012          BEQL    1$                                          ;
                                                08   AC  DD 00014          PUSHL   LINE_PTR                                    ; 0362
                                                     52  DD 00017          PUSHL   R2                                          ;
                            00000000V  EF            02  FB 00019          CALLS   #2, PACSEC                                  ;
                                       53            50  C0 00020          ADDL2   R0, CHAR_COUNT                              ;
                                       50       08   BC  D0 00023          MOVL    @LINE_PTR, R0                               ; 0365
                                       60            2D  90 00027          MOVB    #45, (R0)                                   ;
                                                08   BC  D6 0002A          INCL    @LINE_PTR                                   ;
                                                     53  D6 0002D          INCL    CHAR_COUNT                                  ; 0366
           7E            62            04            04  EF 0002F 1$:      EXTZV   #4, #4, (R2), -(SP)                         ; 0371
                                                08   AC  DD 00034          PUSHL   LINE_PTR                                    ;
                                                08   A2  DD 00037          PUSHL   8(R2)                                       ;
                                       64            03  FB 0003A          CALLS   #3, PACXXX                                  ;
                                       53            50  C0 0003D          ADDL2   R0, CHAR_COUNT                              ;
                                                02   A2  B5 00040          TSTW    2(R2)                                       ; 0374
                                                     13  13 00043          BEQL    2$                                          ;
           7E       0C   A2            04            00  EF 00045          EXTZV   #0, #4, 12(R2), -(SP)                       ; 0377
                                                08   AC  DD 0004B          PUSHL   LINE_PTR                                    ;
                                       7E       02   A2  3C 0004E          MOVZWL  2(R2), -(SP)                                ;
                                       64            03  FB 00052          CALLS   #3, PACXXX                                  ;
                                       53            50  C0 00055          ADDL2   R0, CHAR_COUNT                              ;
                                       50            53  D0 00058 2$:      MOVL    CHAR_COUNT, R0                              ; 0382
                                                         04 0005B          RET                                                 ;

; Routine Size:  92 bytes,    Routine Base:  $CODE$ + 0060
;   259         0383  1 %SBTTL 'Routine PACROM'
;   260         0384  1 GLOBAL ROUTINE PACROM (VALUE,LINE_PTR,ULM) =     !
;   261         0385  1
;   262         0386  1 !++
;   263         0387  1 ! FUNCTIONAL DESCRIPTION:
;   264         0388  1 !
;   265         0389  1 !       Convert a decimal number to roman numerals and place it in the
;   266         0390  1 !       output text.
;   267         0391  1 !
;   268         0392  1 ! FORMAL PARAMETERS:
;   269         0393  1 !
;   270         0394  1 !       VALUE - number to be converted (no negative numbers allowed)
;   271         0395  1 !       LINE_PTR - string pointer into output line for text
;   272         0396  1 !       ULM = indicates whether result is to be in upper, lower, or mixed case.
;   273         0397  1 !
;   274         0398  1 ! IMPLICIT INPUTS:      None
;   275         0399  1 !
;   276         0400  1 ! IMPLICIT OUTPUTS:     None
;   277         0401  1 !
;   278         0402  1 ! ROUTINE VALUE:
;   279         0403  1 ! COMPLETION CODES:
;   280         0404  1 !
;   281         0405  1 !       The length of the converted string is returned
;   282         0406  1 !
;   283         0407  1 ! SIDE EFFECTS: None
;   284         0408  1 !
;   285         0409  1 !--
;   286         0410  1
;   287         0411  2     BEGIN
;   288         0412  2     LOCAL
;   289         0413  2         COUNT,
;   290         0414  2         TEXT:   VECTOR[10];
;   291         0415  2
;   292         0416  2     !Convert to Roman
;   293         0417  2     CONVBR(.VALUE,TEXT,COUNT,.ULM);
;   294         0418  2
;   295         0419  2     !Now pack it into the output line
;   296         0420  2     INCR I FROM 1 TO .COUNT DO
;   297         0421  2         CH$WCHAR_A(.TEXT[.I-1],.LINE_PTR);
;   298         0422  2
;   299         0423  2     .COUNT
;   300         0424  2
;   301         0425  1     END;                            !End of PACROM



                                   0000 00000          .ENTRY  PACROM, Save nothing                              ; 0384
                      5E         2C  C2 00002          SUBL2   #44, SP                                           ;
                            0C   AC  DD 00005          PUSHL   ULM                                               ; 0417
                            04   AE  9F 00008          PUSHAB  COUNT                                             ;
                            0C   AE  9F 0000B          PUSHAB  TEXT                                              ;
                            04   AC  DD 0000E          PUSHL   VALUE                                             ;
             00000000G    EF     04  FB 00011          CALLS   #4, CONVBR                                        ;
                                 50  D4 00018          CLRL    I                                                 ; 0421
                                 0B  11 0001A          BRB     2$                                                ;
```

```
                              51      08   AC D0 0001C 1$:     MOVL    LINE_PTR, R1                        ;
                        00    B1         6E40 F6 00020         CVTLB   TEXT=4[I], @0(R1)                   ;
                                           61 D6 00025         INCL    (R1)                                ;
                  F1          50           6E F3 00027 2$:     AOBLEQ  COUNT, I, 1$                        ;
                              50           6E D0 0002B         MOVL    COUNT, R0                           ; 0425
                                              04 0002E         RET                                         ;

; Routine Size:  47 bytes,    Routine Base:  $CODE$ + 00BC
;   303          0426  1 %SBTTL 'Routine PACSEC'
;   304          0427  1 GLOBAL ROUTINE PACSEC (LINE_NO,STRING_PTR) =     !
;   305          0428  1
;   306          0429  1 !++
;   307          0430  1 ! FUNCTIONAL DESCRIPTION:
;   308          0431  1 !
;   309          0432  1 !       Pack section number into string.
;   310          0433  1 !
;   311          0434  1 ! FORMAL PARAMETERS:
;   312          0435  1 !
;   313          0436  1 !       LINE_NO   - Address of line number to be packed
;   314          0437  1 !       STRING_PTR - String pointer to output string.
;   315          0438  1 !
;   316          0439  1 ! IMPLICIT INPUTS:      None.
;   317          0440  1 !
;   318          0441  1 ! IMPLICIT OUTPUTS:     None
;   319          0442  1 !
;   320          0443  1 ! ROUTINE VALUE:
;   321          0444  1 ! COMPLETION CODES:
;   322          0445  1 !
;   323          0446  1 !       The number of characters generated is returned.
;   324          0447  1 !
;   325          0448  1 ! SIDE EFFECTS: None
;   326          0449  1 !
;   327          0450  1 !--
;   328          0451  1
;   329          0452  2     BEGIN
;   330          0453  2     MAP
;   331          0454  2         LINE_NO: REF BLOCK;
;   332          0455  2     LOCAL
;   333          0456  2         CHAR_COUNT;
;   334          0457  2
;   335          0458  2     CHAR_COUNT=0;
;   336          0459  2
;   337          0460  2     !Figure out which kind of section
;   338          0461  2     CASE .LINE_NO[SCT_TYP] FROM SCT_LOW TO SCT_HIGH OF
;   339          0462  2     SET
;   340          0463  2
;   341          0464  2     [SCT_CHAPT]:
;   342          0465  2             !Chapter
;   343          0466  2             CHAR_COUNT=PACXXX(.LINE_NO[SCT_NUMBER],.STRING_PTR,.LINE_NO[SCT_CHAPT_D]);
;   344          0467  2
;   345          0468  2     [SCT_INDEX]:
;   346          0469  2             !INDEX
;   347          0470  3             BEGIN
;   348          0471  3             LOCAL
;   349          0472  3                 PTR;
;   350          0473  3
;   351          0474  3             IF .LINE_NO[SCT_INDEX_D] EQL TCONVRT_LET_UPP
;   352          0475  3             THEN
;   353        U 0476  3 %IF french %THEN
;   354        U 0477  3                 PTR = CH$PTR(UPLIT('INDEX'))
;   355          0478  3 %ELSE
;   356        U 0479  3 %IF italian %THEN
;   357        U 0480  3                 PTR = CH$PTR(UPLIT('INDEX'))
;   358          0481  3 %ELSE   ! German and English are the same word here:
;   359          0482  3                 PTR = CH$PTR(UPLIT('INDEX'))
;  360          0483 3 %FI %FI
;  361          0484 3             ELSE
;  362          0485 3                 IF .LINE_NO[SCT_INDEX_D] EQL TCONVRT_LET_LOW
;  363          0486 3                 THEN
;  364        U 0487 3 %IF french %THEN
;  365        U 0488 3                     PTR = CH$PTR(UPLIT('index'))
;  366          0489 3 %ELSE
;  367        U 0490 3 %IF italian %THEN
;  368        U 0491 3                     PTR = CH$PTR(UPLIT('index'))
;  369          0492 3 %ELSE   ! German and English are the same word here:
;  370          0493 3                     PTR = CH$PTR(UPLIT('index'))
;  371          0494 3 %FI %FI
;  372          0495 3                 ELSE
;  373          0496 3                 !Everything else is interpreted as "mixed"
;  374        U 0497 3 %IF french %THEN
;  375        U 0498 3                     PTR = CH$PTR(UPLIT('Index'));
;  376          0499 3 %ELSE
;  377        U 0500 3 %IF italian %THEN
;  378        U 0501 3                     PTR = CH$PTR(UPLIT('Index'));
;  379          0502 3 %ELSE   ! German and English are the same word here:
;  380          0503 3                     PTR = CH$PTR(UPLIT('Index'));
;  381          0504 3 %FI %FI
;  382          0505 3
;  383          0506 3             CHAR_COUNT=PACSTR(   .PTR
;  384        U 0507 3 %IF french %THEN
;  385        U 0508 3                                 ,5
;  386          0509 3 %ELSE
;  387        U 0510 3 %IF italian %THEN
;  388        U 0511 3                                 ,5
;  389          0512 3 %ELSE   ! German and English are the same word here:
;  390          0513 3                                 ,5
;  391          0514 3 %FI %FI
;  392          0515 3                                 ,.STRING_PTR);
;  393          0516 2             END;
;  394          0517 2
;  395          0518 2     [SCT_APPEND]:
;  396          0519 2             !Appendix
;  397          0520 2             CHAR_COUNT=PACXXX(.LINE_NO[SCT_NUMBER],.STRING_PTR,.LINE_NO[SCT_APPEN_D]);
;  398          0521 2
;  399          0522 2     TES;
;  400          0523 2
;  401          0524 2     .CHAR_COUNT
;  402          0525 2
;  403          0526 1     END;                        !End of PACSEC



                                                                          .PSECT  $PLIT$,NOWRT,NOEXE,2

                           00  00  00  58  45  44  4E  49  00000 P.AAA:  .ASCII  \INDEX\<0><0><0>                                   ;
                           00  00  00  78  65  64  6E  69  00008 P.AAB:  .ASCII  \index\<0><0><0>                                   ;
                           00  00  00  78  65  64  6E  49  00010 P.AAC:  .ASCII  \Index\<0><0><0>                                   ;



                                                                          .PSECT  $CODE$,NOWRT,2
```

```
                                                          001C 00000         .ENTRY   PACSEC, Save R2,R3,R4                  ; 0427
                                     54 00000000'    EF     9E 00002         MOVAB    P.AAA, R4                              ;
                                                     50     D4 00009         CLRL     CHAR_COUNT                             ; 0458
                                     51        04    AC     D0 0000B         MOVL     LINE_NO, R1                            ; 0461
         53       61                 04              00     EF 0000F         EXTZV    #0, #4, (R1), R3                       ;
                  02                 01              53     CF 00014         CASEL    R3, #1, #2                             ;
                003C               000E            0006        00018 1$:     .WORD    2$-1$,-                                ;
                                                                                      3$-1$,-                                ;
                                                                                      7$-1$                                  ;
         7E       0C    A1           04              04     EF 0001E 2$:     EXTZV    #4, #4, 12(R1), -(SP)                  ; 0466
                                                     34     11 00024         BRB      8$                                     ;
         02       0D    A1           04              04     ED 00026 3$:     CMPZV    #4, #4, 13(R1), #2                     ; 0474
                                                     05     12 0002C         BNEQ     4$                                     ;
                                     52              64     9E 0002E         MOVAB    P.AAA, PTR                             ; 0482
                                                     12     11 00031         BRB      6$                                     ;
         03       0D    A1           04              04     ED 00033 4$:     CMPZV    #4, #4, 13(R1), #3                     ; 0485
                                                     06     12 00039         BNEQ     5$                                     ;
                                     52        08    A4     9E 0003B         MOVAB    P.AAB, PTR                             ; 0493
                                                     04     11 0003F         BRB      6$                                     ;
                                     52        10    A4     9E 00041 5$:     MOVAB    P.AAC, PTR                             ; 0503
                                               08    AC     DD 00045 6$:     PUSHL    STRING_PTR                             ; 0515
                                                     05     DD 00048         PUSHL    #5                                     ; 0506
                                                     52     DD 0004A         PUSHL    PTR                                    ;
                           00000000V EF              03     FB 0004C         CALLS    #3, PACSTR                             ;
                                                            04 00053         RET                                             ; 0461
         7E       0D    A1           04              00     EF 00054 7$:     EXTZV    #0, #4, 13(R1), -(SP)                  ; 0520
                                               08    AC     DD 0005A 8$:     PUSHL    STRING_PTR                             ;
                                               04    A1     DD 0005D         PUSHL    4(R1)                                  ;
                           00000000V EF              03     FB 00060         CALLS    #3, PACXXX                             ;
                                                            04 00067         RET                                             ; 0526

; Routine Size:  104 bytes,    Routine Base:  $CODE$ + 00EB
```

```
1 %SBTTL 'Routine PACSTR'
1 GLOBAL ROUTINE PACSTR (STG_PTR, STG_SIZE, LINE_PTR) =    !
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       Pack string into print line.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       STG_PTR - ch$ptr to string to be packed.
1 !       STG_SIZE - size of string to be packed.
1 !       LINE_PTR - string pointer to output print line.
1 !
1 ! IMPLICIT INPUTS:          None
1 !
1 ! IMPLICIT OUTPUTS:         None
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       Number of characters placed in print line.
1 !
1 ! SIDE EFFECTS: None
1 !
1 !--
1
2     BEGIN
2     LOCAL
2         CHAR_COUNT,
2         C_PTR;
2
2     CHAR_COUNT = 0;
2     C_PTR = .STG_PTR;
2     !Now pack the string
2
2     INCR I FROM 1 TO .STG_SIZE DO
3         BEGIN
3         LOCAL
3             CHAR;
3
3         CHAR = CH$RCHAR_A (C_PTR);
3
4         IF (.CHAR LSS %C' '
4             OR .CHAR GTR %O'176')
3         THEN
3         !Substitute printables for control character
4             BEGIN
4             CH$WCHAR_A (%C'^', .LINE_PTR);
4             CHAR_COUNT = .CHAR_COUNT + 1;
4             CHAR = %C'@' + .CHAR
3             END;
3
3         CH$WCHAR_A (.CHAR, .LINE_PTR);
3         CHAR_COUNT = .CHAR_COUNT + 1
2         END;
2
```

```
;  462           0584  2      .CHAR_COUNT
;  463           0585  1      END;                                       !End of PACSTR



                                       001C 00000           .ENTRY  PACSTR, Save R2,R3,R4                          ; 0528
                                     50  D4 00002           CLRL    CHAR_COUNT                                     ; 0559
                        54       04  AC  D0 00004           MOVL    STG_PTR, C_PTR                                 ; 0560
                                     53  D4 00008           CLRL    I                                              ; 0563
                                     2E  11 0000A           BRB     4$                                             ;
                        52           84  9A 0000C 1$:       MOVZBL  (C_PTR)+, CHAR                                 ; 0568
                        20           52  D1 0000F           CMPL    CHAR, #32                                      ; 0570
                                     09  19 00012           BLSS    2$                                             ;
              0000007E  8F           52  D1 00014           CMPL    CHAR, #126                                     ; 0571
                                     11  15 0001B           BLEQ    3$                                             ;
                        51       0C  AC  D0 0001D 2$:       MOVL    LINE_PTR, R1                                   ; 0575
                    00  B1       5E  8F  90 00021           MOVB    #94, @0(R1)                                    ;
                                     61  D6 00026           INCL    (R1)                                           ;
                                     50  D6 00028           INCL    CHAR_COUNT                                     ; 0576
                        52       40  A2  9E 0002A           MOVAB   64(R2), CHAR                                   ; 0577
                        51       0C  AC  D0 0002E 3$:       MOVL    LINE_PTR, R1                                   ; 0580
                    00  B1           52  90 00032           MOVB    CHAR, @0(R1)                                   ;
                                     61  D6 00036           INCL    (R1)                                           ;
                                     50  D6 00038           INCL    CHAR_COUNT                                     ; 0581
           CD           53       08  AC  F3 0003A 4$:       AOBLEQ  STG_SIZE, I, 1$                                ;
                                         04 0003F           RET                                                    ; 0585

; Routine Size:  64 bytes,    Routine Base:  $CODE$ + 0153
```

```
1 %SBTTL 'Routine PACXXX'
1 GLOBAL ROUTINE PACXXX (VALUE, LINE_PTR, DISPLAY_CODE) =          !
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       Convert a decimal number to whatever and place it in the
1 !       output text.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       VALUE - number to be converted (no negative numbers allowed)
1 !       LINE_PTR - string pointer into output line for text
1 !       DISPLAY_CODE - indicates type of conversion desired.
1 !
1 ! IMPLICIT INPUTS:       None
1 !
1 ! IMPLICIT OUTPUTS:      None
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       The length of the converted string is returned
1 !
1 ! SIDE EFFECTS: None
1 !
1 !--
1
2     BEGIN
2
2     CASE .DISPLAY_CODE FROM TCONVRT_LOW TO TCONVRT_HIGH OF
2         SET
2         [TCONVRT_DEC_NOZ, TCONVRT_DEC_ZER] :
2             PACBAS (.VALUE, .LINE_PTR, 10);
2
2         [TCONVRT_OCT_NOZ] :
2             PACBAS (.VALUE, .LINE_PTR, 8);
2
2         [TCONVRT_HEX_NOZ] :
2             PACBAS (.VALUE, .LINE_PTR, 16);
2
2         [TCONVRT_LET_UPP] :
2             PACLET (.VALUE, .LINE_PTR, -1);
2
2         [TCONVRT_LET_LOW] :
2             PACLET (.VALUE, .LINE_PTR, 0);
2
2         [TCONVRT_LET_MIX] :
2             PACLET (.VALUE, .LINE_PTR, +1);
2
2         [TCONVRT_ROM_UPP] :
2             PACROM (.VALUE, .LINE_PTR, -1);
2
2         [TCONVRT_ROM_LOW] :
2             PACROM (.VALUE, .LINE_PTR, 0);
2
2         [TCONVRT_ROM_MIX] :
```

```
;  522          0643 2              PACROM (.VALUE, .LINE_PTR, +1);
;  523          0644 2
;  524          0645 2          TES
;  525          0646 1      END;                                        !End of PACXXX



                                                       0004 00000         .ENTRY  PACXXX, Save R2                            ; 0587
                                       52     FE67   CF   9E 00002         MOVAB   PACBAS, R2                                  :
                                       50       04   AC   7D 00007         MOVQ    VALUE, R0                                   ; 0619
                         09            00       0C   AC   CF 0000B         CASEL   DISPLAY_CODE, #0, #9                        ; 0616
         0029          0024          0014          0014      00010 1$:     .WORD   2$-1$,-                                     :
         003F          003B          0036          002D      00018                 2$-1$,-                                     :
                                     001C          0018      00020                 6$-1$,-                                     :
                                                                                   7$-1$,-                                     :
                                                                                   8$-1$,-                                     :
                                                                                   10$-1$,-                                    :
                                                                                   11$-1$,-                                    :
                                                                                   12$-1$,-                                    :
                                                                                   3$-1$,-                                     :
                                                                                   4$-1$                                       :
                                                     0A  DD 00024 2$:     PUSHL   #10                                         ; 0619
                                                     06  11 00026         BRB     5$                                          :
                                                     08  DD 00028 3$:     PUSHL   #8                                          ; 0622
                                                     02  11 0002A         BRB     5$                                          :
                                                     10  DD 0002C 4$:     PUSHL   #16                                         ; 0625
                                                     03  BB 0002E 5$:     PUSHR   #^M<R0,R1>                                  :
                                       62            03  FB 00030         CALLS   #3, PACBAS                                  :
                                                         04 00033         RET                                                 :
                                       7E            01  CE 00034 6$:     MNEGL   #1, -(SP)                                   ; 0628
                                                     06  11 00037         BRB     9$                                          :
                                                     7E  D4 00039 7$:     CLRL    -(SP)                                       ; 0631
                                                     02  11 0003B         BRB     9$                                          :
                                                     01  DD 0003D 8$:     PUSHL   #1                                          ; 0634
                                                     03  BB 0003F 9$:     PUSHR   #^M<R0,R1>                                  :
                                  30   A2            03  FB 00041         CALLS   #3, PACLET                                  :
                                                         04 00045         RET                                                 :
                                       7E            01  CE 00046 10$:    MNEGL   #1, -(SP)                                   ; 0637
                                                     06  11 00049         BRB     13$                                         :
                                                     7E  D4 0004B 11$:    CLRL    -(SP)                                       ; 0640
                                                     02  11 0004D         BRB     13$                                         :
                                                     01  DD 0004F 12$:    PUSHL   #1                                          ; 0643
                                                     03  BB 00051 13$:    PUSHR   #^M<R0,R1>                                  :
                                00BC   C2            03  FB 00053         CALLS   #3, PACROM                                  :
                                                         04 00058         RET                                                 ; 0646

; Routine Size:  89 bytes,    Routine Base:  $CODE$ + 0193


;  526          0647 1
;  527          0648 1 END                                                !End of module
;  528          0649 0 ELUDOM
;                                          PSECT SUMMARY
;
;       Name                         Bytes                         Attributes
;
;    $CODE$                              492  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;    $PLIT$                               24  NOVEC,NOWRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)




;                                 Library Statistics
;
;                                                  -------- Symbols --------       Pages         Processing
;       File                                       Total    Loaded   Percent       Mapped        Time
;
;    _$255$DUA28:[SYSLIB]XPORT.L32;1                590         0         0          252           00:00.2
;    _$255$DUA28:[RUNOFF.SRC]DSRLIB.L32;1          1248        26         2           86           00:00.3





;                                          COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:PACK/OBJ=OBJ$:PACK MSRC$:PACK/UPDATE=(ENH$:PACK)

; Size:          492 code + 24 data bytes
; Run Time:         00:10.3
; Elapsed Time:     00:22.8
; Lines/CPU Min:      3795
; Lexemes/CPU-Min:  12304
; Memory Used:   58 pages
; Compilation Complete
```

0346 AH-BT13A-SE
VAX/VMS V4.0

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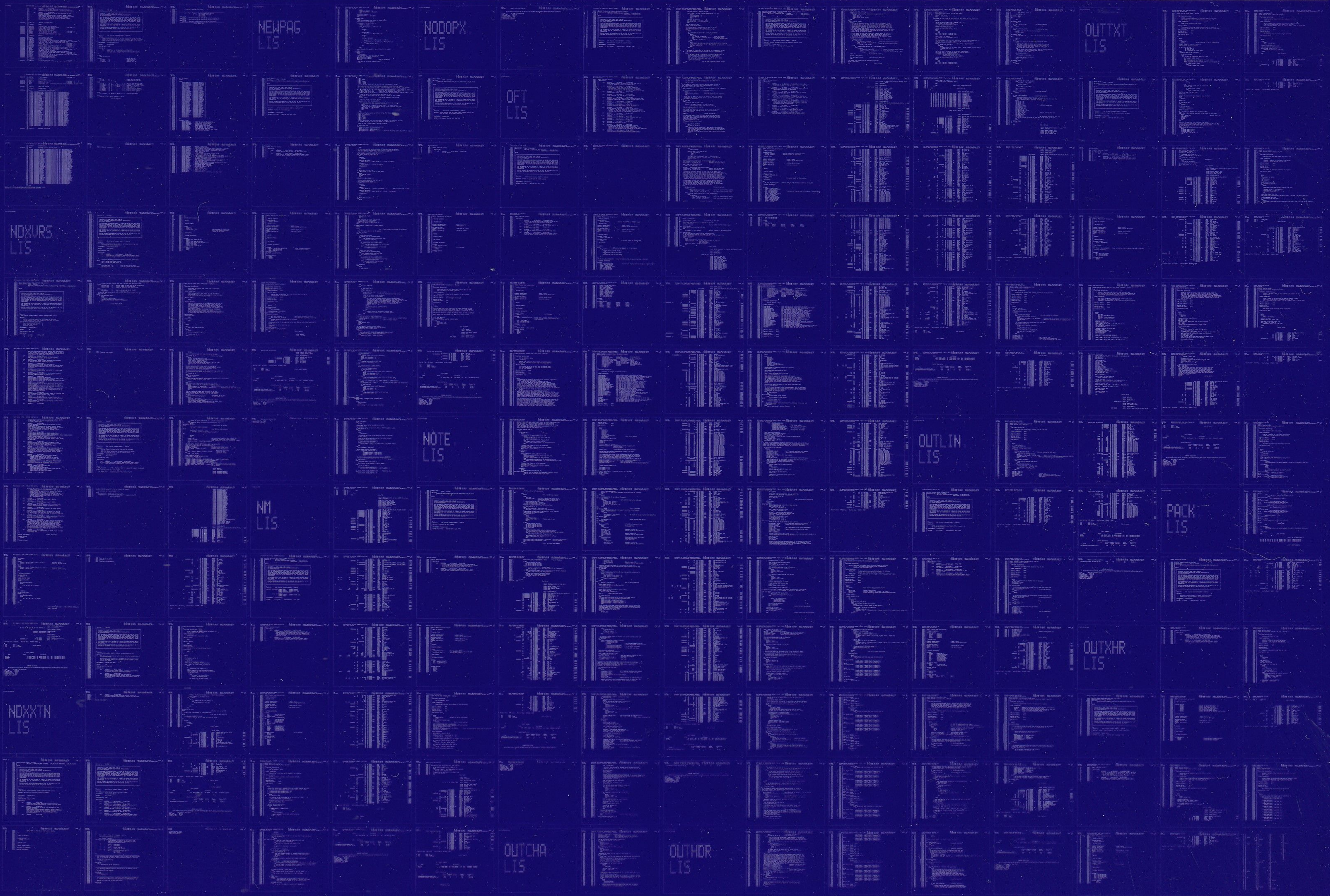

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